

PATENT  
Attorney Docket No. 05788-0157

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Eduardo GRIZANTE REDONDO et al. ) Group Art Unit: Unassigned  
Serial No.: Unassigned ) Examiner: Unassigned  
Filed: March 23, 2001 )  
For: LOW-SMOKE SELF- )  
EXTINGUISHING ELECTRICAL )  
CABLE AND FLAME-RETARDANT )  
COMPOSITION USED THEREIN )

being a **Continuation** of PCT International Application No. PCT/EP99/06910 filed  
September 17, 1999.

BOX PATENT APPLICATIONS  
Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

**PRELIMINARY AMENDMENT**

Before examining this application, please amend the application as follows:

**IN THE SPECIFICATION:**

Please amend the specification as follows:

Page 1, before line 4, insert the following new paragraph:

This application is a continuation of International Application No.

PCT/EP99/06910, filed September 17, 1999, and claims the priority of EP98118194.4,

filed September 25, 1998; and the benefit of U.S. Provisional application No.

60/102,926, filed October 1, 1998, the content of all of which is incorporated herein by reference.

**IN THE CLAIMS:**

Prior to claim 1, delete "CLAIMS." and insert therefor --WHAT IS CLAIMED IS--:

Please cancel claims 1-15 without prejudice or disclaimer and substitute new claims 16-30 therefor as follows:

**WHAT IS CLAIMED IS:**

16. (New) A self-extinguishing cable comprising a conductor and a flame-retardant coating, said flame-retardant coating comprising:

(a) an ethylene homopolymer or copolymer having a density of from 0.905 to 0.970 g/cm<sup>3</sup>, wherein said ethylene homopolymer or copolymer are: ethylene homopolymers; copolymers of ethylene with an alpha-olefin; copolymers of ethylene with an ethylenically unsaturated ester; or mixtures thereof;

(b) a copolymer of ethylene with at least one alpha-olefin, and optionally with a diene, said copolymer (b) having a density of from 0.860 to 0.904 g/cm<sup>3</sup>, and having a composition distribution index greater than 45%, said index being defined as the weight percentage of copolymer molecules having an alpha-olefin content within 5% of the average total molar content of alpha-olefin;

(c) natural magnesium hydroxide in an amount such as to impart flame-retardant properties;

wherein at least one of the polymeric components (a) and (b) contains hydrolyable organic silane groups grafted onto the polymer chain.

17. (New) The cable according to claim 16, wherein the polymeric component (a) is high density polyethylene (HDPE) having a density of at least 0.940 g/cm<sup>3</sup>; medium density polyethylene (MDPE) having a density of from 0.926 to 0.940 g/cm<sup>3</sup>;

low density polyethylene (LDPE) or linear low density polyethylene (LLDPE) having a density of from 0.910 to 0.926 g/cm<sup>3</sup>; copolymers of ethylene with at least one ester, wherein said ester is an alkyl acrylate, alkyl methacrylate or vinyl carboxylate, wherein the alkyl group of said ester is linear or branched, has from 1 to 8 carbon atoms, while the carboxylate group of said ester is linear or branched, and has from 2 to 8 carbon atoms.

18. (New) The cable according to claim 16, wherein the polymeric component (b) has a Molecular Weight Distribution (MWD) index of less than 5.

19. (New) The cable according to claim 16, wherein the polymeric component (b) is produced by copolymerization of ethylene with an alpha-olefin, and optionally with a diene, in the presence of a single-site catalyst.

20. (New) The cable according to claim 16, wherein the natural magnesium hydroxide is obtained by grinding a mineral based on magnesium hydroxide.

21. (New) The cable according to claim 16, wherein the amount of natural magnesium hydroxide is predetermined so as to obtain a Limited Oxygen Index (LOI) value of at least 30, measured on compression moulded plates according to ASTM Standard D-2863.

22. (New) The cable according to claim 16, wherein the amount of natural magnesium hydroxide is between 10 and 90% by weight with respect to the total weight of the composition.

23. (New) The cable according to claim 16, wherein the amount of the ethylene homopolymer or copolymer (a) is such that the flame-retardant coating

obtained after extrusion has a value of thermocompression resistance, measured at 90°C according to CEI standard 20-34/3-1, greater than 50%.

24. (New) The cable according to claim 16, wherein the amount of the copolymer of ethylene with an alpha-olefin (b) is such that the flame-retardant coating obtained after extrusion has an elongation at break, measured according to CEI standard 20-34 § 5.1, of at least 100% and a modulus at 20%, measured according to CEI standard 20-34 § 5.1, of less than 12 MPa.

25. (New) The cable according to claim 16, wherein the flame-retardant coating comprises, as a polymer matrix, a mixture comprising from 10 to 60% by weight of an ethylene homopolymer or copolymer (a), and from 40 to 90% by weight of a copolymer (b), the percentages being referred to the total weight of the polymeric components (a) and (b).

26. (New) The cable according to claim 16, wherein the hydrolyzable organic silane groups are grafted onto the polymer chain during compounding of the flame-retardant coating by adding to the polymer mixture a radical initiator and an organic silane compound containing at least one hydrolyzable group and at least one ethylenically unsaturated hydrocarbon group.

27. (New) The cable according to claim 26, wherein the organic silane is added to the mixture in an amount of from 0.5 to 10 parts by weight with respect to 100 parts by weight of the polymer matrix.

28. (New) The cable according to claim 26, wherein the radical initiator is added to the mixture in an amount of from 0.01 to 1 part by weight with respect to 100 parts by weight of the polymer matrix.

LAW OFFICES  
FINNEGAN, HENDERSON,  
FARABOW, GARRETT,  
& DUNNER, L.L.P.  
1300 I STREET, N.W.  
WASHINGTON, DC 20005  
202-408-4000

29. (New) A flame-retardant composition comprising:

- (a) an ethylene homopolymer or copolymer having a density of from 0.905 to 0.970 g/cm<sup>3</sup>, wherein said ethylene homopolymer or copolymer are: ethylene homopolymers; copolymers of ethylene with an alpha-olefin; copolymers of ethylene with an ethylenically unsaturated ester; or mixtures thereof;
- (b) a copolymer of ethylene with at least one alpha-olefin, and optionally with a diene, said copolymer (b) having a density of from 0.860 to 0.904 g/cm<sup>3</sup>, and having a composition distribution index greater than 45%, said index being defined as the weight percentage of copolymer molecules having an alpha-olefin content with 50% of the average total molar content of alpha-olefin;
- (c) natural magnesium hydroxide in an amount such as to impart flame-retardant properties;  
wherein at least one of the polymeric components (a) and (b) contains hydrolyzable organic silane groups grafted onto the polymer chain.

30. (New) A method for producing a self-extinguishing cable, said method comprising the following steps: (1) preparing a polymer mixture having flame-retardant properties; and (2) extruding said mixture on a conductor optionally pre-coated with an insulating layer, wherein step (1) comprises mixing a polymer matrix with a predetermined amount of natural magnesium hydroxide, and further adding to said polymer matrix a radical initiator and an organic silane compound containing at least one hydrolyzable group and at least one ethylenically unsaturated hydrocarbon group, in order to obtain grafting of hydrolyzable organic silane groups onto the polymer chains;

said polymer matrix comprising:

- (a) an ethylene homopolymer or copolymer having a density of from 0.905 to 0.970 g/cm<sup>3</sup>, wherein said ethylene homopolymer or copolymer are: ethylene homopolymers; copolymers of ethylene with an alpha-olefin; copolymers of ethylene with an ethylenically unsaturated ester; or mixtures thereof;
- (b) a copolymer of ethylene with at least one alpha-olefin, and optionally with a diene, said copolymer (b) having a density of from 0.860 to 0.904 g/cm<sup>3</sup>, having a composition distribution index greater than 45%, said index being defined as the weight percentage of copolymer molecules having an alpha-olefin content with 50% of the average total molar content of alpha-olefin.

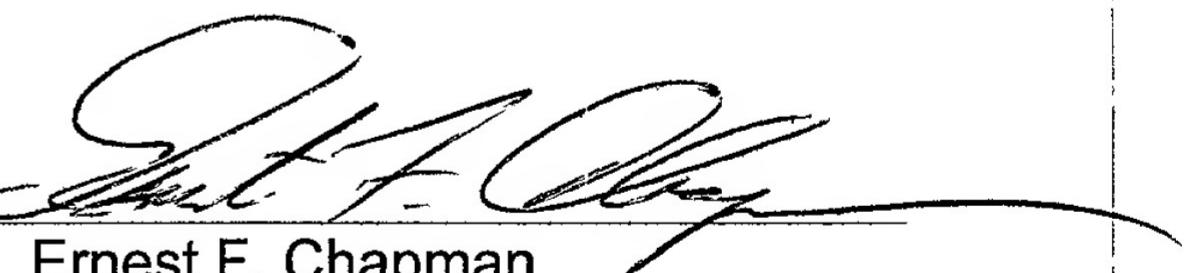
**REMARKS**

Claims 16-30 are currently pending. These claims, based on claims 1-15 as filed, have been amended to conform them to U.S. practice and to eliminate multiple claim dependency. No new matter has been added by this Preliminary Amendment.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: March 23, 2001

By:   
Ernest F. Chapman  
Reg. No. 25,961